# ICM Congress 2014 Partograph Side Meeting

Thursday 5 June, 2014
Prague Congress Center, Club D
7.30 – 10.00 am

To determine future research, education and practice priorities for realizing the potential of the partograph, co-hosted by WHO, USAID's maternal and Child Health Integrated Program (MCHIP), EngenderHealth and the University of Manchester

## ACKNOWLEDGEMENTS

The organizers express sincere appreciation to Carol Bedwell, Tina Lavender, Karen Levin and Celia Pett for conducting the Realist Review; to Carol Bedwell for the presentation of the review at the side-meeting; to Tina Lavender for presenting the results of the Midwives' partograph survey.

MCHIP together with WHO, EngenderHealth and the University of Manchester acknowledge the sincere discussions and contributions of the participants. Participants were unanimously in favor of the use of the partograph in quality management of labor in low resource settings. They appreciated that they were provided with concrete ideas for the improvement of the application of the partograph for quality labor management.

Members of MCHIP, WHO, EngenderHealth and the University of Manchester who developed the meeting were: Sheena Currie, Kate Brickson, Jessica Kerbo, Sruti Ramadugu (MCHIP), Fran McConville (WHO), Celia Pett (EngenderHealth), Tina Lavender, Carol Bedwell (University of Manchester), Barbara Kwast (consultant for MCHIP). Facilitators at the meeting were: Barbara Kwast, Fran McConville, Celia Pett, Carol Bedwell, Tina Lavender and Sheena Currie.

# Table of Contents

## GLOSSARY

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|---|---|
| ACNM | American College of Nurse Midwives |
| AMDD | Averting Maternal Death and Disability |
| EmOC | Emergency Obstetric Care |
| ICM | International Confederation of Midwives |
| MCHIP | Maternal Child Health Integrated Program |
| MMR | Maternal Mortality Ratio |
| NGO | Non-Governmental Organizations |
| NNM | Neonatal Mortality Rate |
| PBF | Performance based financing |
| PMR | Perinatal Mortality Rate |
| RCM | Royal College of Midwives |
| S-S Africa | Sub-Saharan Africa |
| SA | South Asia |
| SBA | Skilled Birth Attendant |
| UNICEF | United Nations Children Fund |
| UNFPA | United Nations Population Fund |
| USAID | United States Agency of International Development |
| WHO | World Health Organization |

# Executive Summary

The Partograph Side Meeting at the 30th Triennial ICM Congress in Prague, June 1-5, 2014 was co-hosted by WHO, USAID's Maternal and Child Health Integrated Program (MCHIP), EngenderHealth and the University of Manchester.

The rationale for this meeting was to further the potential of the partograph and strengthen implementation of the partograph in low-resource settings.

The meeting was informed by the findings of the partograph 'Realist Review' which was conducted by the University of Manchester and EngenderHealth in response to a recommendation arising from the Fistula Care/EngenderHealth's consultative meeting on: Revitalizing the partograph: 'Does the Evidence Support a Global Call to Action?' in 2011. These findings were presented at the 2014 ICM Congress. In preparation for the meeting, a survey of African and South Asian midwives was also conducted, to explore their views and practice on partograph use.

The ICM Congress was perceived as a good opportunity to advance this agenda because many relevant stakeholders would be present. Meeting participants included representatives of International Reproductive Health organizations and the United Nations (i.e. UNFPA, WHO, UNICEF), professional midwifery organizations (i.e. RCM/ACNM), midwife educators, mHealth Organizations and practicing midwives from sub-Sahara Africa and South Asia. (Participant list: Appendix A)

## MEETING AIM

The aim of the meeting was to reach a consensus on future research, education and practice priorities for improved application of the partograph based on the findings from the 'Realist Review' and midwives' survey.

## PROCESS OF THE MEETING

After the two presentations of research there was a short plenary brainstorming session to identify solutions for better application of the partograph. (Agenda, Appendix B). Subsequently, the participants were self-selected into five groups and each was asked to address one of the five theories according to the methodology of the Realist Review: 1.Health worker acceptability of the partograph; 2. Health system support; 3. Effective referral systems; 4. Human resources; 5. Health worker competence.

Each theory had one or more research questions with evidence from the Realist Review which was provided to the participants' groups (Appendix C-G). Each group had one facilitator and was asked to discuss and identify two priorities related to research, education and practice.

After 45 minutes of vigorous discussions, each group leader presented the salient points and priorities related to research, education and practice. These are contained in the Tables 1-5 in the body of this report. At the end of the meeting, consensus was reached on overarching issues which were contained in several of the group's discussions.

At the end of the session all participants unanimously expressed the importance of the partograph for labor monitoring and decision making in low resource settings while recognizing that health system support is needed to operationalize the partograph at all levels.

There is not necessarily one version of the partograph that fits all levels of the health service. Where sufficient skilled, experienced health workers are available a full partograph is relevant but, where this is not so, more simplified versions can be developed, tested and implemented.

## FUTURE PRIORITIES

**Research:**
Research should be conducted to establish whether a package of interventions that include policy formulation, inter-disciplinary training, clinical guidelines linked to the partograph at all levels of the health system, audit, and systems level support can make the partograph work better as a decision making tool.

**Education:**
There is a need for interdisciplinary partograph education (both pre-service and in-service) and election of 'champions' at all levels of the health system. Updating of tutors regarding clinical guidelines for partograph application as a decision- making tool is imperative.

**Practice:**

- Partograph mentoring and facilitative supervision to be established.
- Preparations of guidelines/updated protocols both for clinical management and referral to be developed or to be made available if they already exist.
- Preparation of guidelines for partograph mentors, supervisors and peer support.
- Partograph reviews need to take place on a daily-, rather than a monthly basis. In those instances when women were transferred in labor from the periphery, regular feed-back of outcome to the referral level needs to be implemented. Partograph reviews need to be part of facilitative, educative supervision in health centers.

## CONCLUSIONS

Participants concluded that the partograph could only be effective as a decision-making tool and its value meaningfully assessed within a well-functioning district health system in which all essential components of the continuum of care from home to hospital are present. For example: referral systems should be built on trust and interdisciplinary communication, flowing up and down the chain of command, with strong leadership and accountability. The structure of the referral system within this continuum of care needs to be effective. Quality supervised care is essential at all levels. In order to achieve this, regular reviews/audits of partographs or other labor management tools will highlight the effectiveness of partograph application. While not specified by participants, the report authors contend that these factors are equally relevant for the successful implementation of any other labor monitoring tool.

Participants recommended that partographs should not be used to replace the 'skilled birth attendant' (SBA) indicator in performance-based financing (PBF) projects, as there is evidence that some partographs are completed retrospectively and can mislead performance actually achieved. The same applies when incentives are paid for completed partographs.

The role of e-learning and mHealth need to be explored in increasing effective use of the partograph.

The priorities identified by meeting participants and outlined in this report do not constitute and were not intended as an action plan for revitalizing the partograph. However, by disseminating this report to a wide group of stakeholders, we hope that the priorities identified will serve as a useful basis for developing international and national recommendations for research, education and practice and to leverage the resources required to implement them.

# Introduction

The tragedies of obstructed labor and ruptured uterus comprise one of the major causes of maternal and perinatal mortality and morbidity in low-resource settings (Mathai, 2009; WHO, 2010). The phenomena of obstructed labor and ruptured uterus have been described extensively since the 1950s.

Prevention of these conditions depends on accurate, early recognition and timely action when abnormal labor progress is diagnosed.

The partograph, introduced by Philpott (1972) in Zimbabwe, was designed as a managerial tool for both monitoring and decision making in the early detection of prolonged and obstructed labor (WHO 1994). It may thus be used to assist:

- Referral decisions in health centers
- Intervention decisions in hospitals
- Ongoing evaluation of the effect of interventions.

Recent program evaluations by MCHIP and Emergency Obstetric Care Assessments (EmOC) by the Averting Maternal Death and Disability Program (AMDD) have shown that partograph use in several countries in sub-Saharan Africa is low and almost non-existent in several countries in Asia. It has become apparent that the partograph is mostly perceived as a labor monitoring tool rather than a decision-making tool in labor.

In 2011, Fistula Care completed a literature review regarding the partograph (Levin and Kabagema, 2011). In order to consider revitalizing the application of the partograph, Fistula Care together with USAID, the Maternal Health Task Force and EngenderHealth convened an expert meeting in New York in November 2011 to address the question: does the evidence support a global call to action to revitalize the partograph? Consensus was reached on tasks related to several issues: partograph collaboration; the partograph tool; partograph training, implementation and research (Fistula Care and Maternal Health Task Force, 2012).

As a first step a Realist Review (Pawson et al, 2005) was undertaken by the University of Manchester and EngenderHealth to review current partograph implementation approaches to identify gaps and changes required to achieve effective use of the partograph and to produce a meta-synthesis of observational study data on partograph use from 1970 to present (Bedwell C, Levin K, Lavender T, March 2014). This Realist Review forms the basis for the ICM Congress Partograph Side-Meeting in Prague, June 2014.

# Background

Realist Reviews aim to provide an explanatory analysis of the association between context, mechanisms and outcomes (Pawson et al 2005). Based on the findings and consensus of the Expert Meeting on the partograph in New York in 2011, and drawing on available evidence, the argument was put forward that problems with the partograph might result more from contextual challenges of fragile health systems than from deficiencies in the tool itself. Thus, the 'realist review' methodology was advocated to assessing the value of the partograph as it uncovers the constraints to its effective use and helps in developing more effective training and implementation strategies (Bedwell C, Levin K, Lavender T, 2014).

An enabling environment is indispensable for effective labor progress monitoring. C. Bedwell presented an evaluative evidence framework that proposed five theories related to the enabling environment:

1. Health worker acceptability
2. Health system support
3. Effective referral systems
4. Human resources
5. Health provider competence.

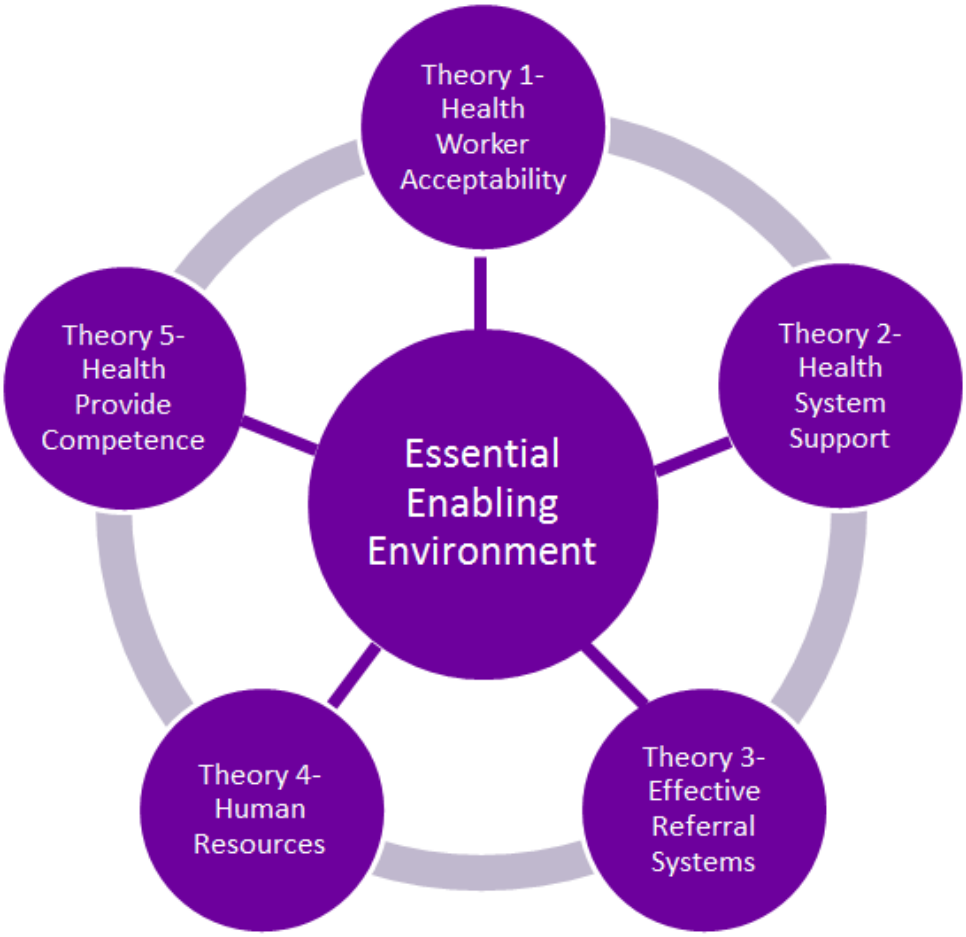


*Figure 1. Source: Bedwell C, Levin K, Lavender T. A Realist Review of the Partograph. 2014*

The Synthesis of the data from the included studies in the realist review relate to the context in which the partograph is utilized (context), how and why the partograph works (mechanism) and what outcomes are associated with the partograph (outcome). Of the 729 papers identified, 416 remained after removal of duplicates. Of the 291 full text papers screened for eligibility, 92 papers were included in the review.

The results were presented under the identified review parameters. Each theory has a number of questions along with evidence and recommendations. For the purpose of the side meeting, the

five theories were presented and for each theory the questions and evidence were presented (Appendix C-G).

In addition partograph survey results on the use, implementation and training among 187 midwives were shown. Eighty-five midwives were from Asia and 102 from Africa. The majority (182) felt that the partograph should be used for all laboring woman and 122 actually used the tool for monitoring women in labor. The composite, modified and simplified partograph was used by 46%, 42% and 6% of midwives respectively. Sixty percent of midwives had a management protocol and fifty percent participated in partograph reviews. For 128 midwives training was given in a single classroom lecture and training was felt to be adequate by 126 midwives. The median years of last training were five years (range from 2 weeks to 26 years).

## PROCESS OF THE SIDE-MEETING

The aim, objectives and the process of the side-meeting were developed over several months through a number of teleconferences between MCHIP, EngenderHealth, WHO and Manchester University.

Meeting participants included representatives of International Reproductive Health organizations and the United Nations (i.e. UNFPA, WHO, UNICEF), professional midwifery organizations (i.e. RCM/ACNM), midwife educators, mHealth Organizations and practicing midwives from sub-Sahara Africa and South Asia. (Participant list: Appendix A)

The Agenda of the meeting is contained in Appendix B. Given the short time-frame of the meeting, participants were presented with a condensed summary of the Partograph Realist Review findings. During group work participants were tasked with identifying priorities for research, education and practice based on these findings.

**Aim:**
To determine future research, education and practice priorities based on the Partograph Realist Review findings for furthering the potential of the partograph

**Objectives:**

1. To share findings of the EngenderHealth/University of Manchester partograph 'Realist Review'
2. To present results of a survey of midwives in sub-Sahara Africa and South Asia on current education and practice in their setting
3. To identify major solutions based on the two presentations in an interactive brainstorming plenary session
4. To determine future research, education and practice priorities in small group work based on the findings of the presentations using a pre-designed template (for each of the 5 theories)
5. To reach a consensus of priorities in closing plenary

An overview of the Realist Review (CB) and the midwives' partograph survey (TL) were presented.

This was followed by a short interactive plenary brainstorming session to elicit some spontaneous suggestions for solutions related to the evidence that was presented. Considering the volume of information and the short time available, this was difficult to realize to its full potential.

Participants were then requested to divide into five groups of six people. Each group addressed one theory. The questions addressed in the 'realist review' together with a synthesis of findings

related to each theory were given to the relevant group (Appendix C-G). Each group was asked to identify priorities for research, education and practice for the allocated theory.

The group work went very well and there was energetic discussion and a wealth of suggestions for better applications of the partograph in various settings.

## PRIORITIES FOR RESEARCH, EDUCATION AND PRACTICE

The following five tables reflect the outcomes of the discussions.

**Table 1: Health Worker Acceptability**

Questions:

- Do health care workers use the partograph?
- What are health care workers attitudes towards the partograph?
- How does the format of the partograph affect usability?

| | | **Priorities** |
|---|---|---|
| **Research** | 1. | How can clinical guidelines be better linked to partograph form and what is the most effective version of partograph format? |
| | 2. | What works best for monitoring and supervision in order to motivate HW to use the partograph more effectively? |
| **Education** | 1. | Pre-service partograph education for all HW involved in maternity care |
| | 2. | Evidence-based continuing education |
| **Practice** | 1. | Partograph should be included in all maternity records |
| | 2. | Partograph review and feed-back mechanisms to be routinely implemented in maternity units. Daily feedback could have a positive effect on appropriate action and accurate completion. A team approach is likely to help embed partograph use in maternity unit 'culture'. |

**Discussion points of the group:**
Participants did not view the partograph as a user-friendly tool. They suggested that failure to act on partograph findings may be linked to hierarchy within maternity care teams, resulting in doctors overriding midwives' judgment and decisions.

It was emphasized in the discussion that partograph 'review' is a less threatening term than 'audit', - and that discouragement of the health workers should be avoided. Through a team approach a positive culture of feedback and learning can be established.

**Table 2: Health System Support**

Questions:

- What is the organizational commitment to partograph use?
- What is the policy and guidance related to partograph use?
- Is there support for partograph use in terms of resource provision?
- How can the partograph be implemented effectively?

| | | **Priorities** |
|---|---|---|
| **Research** | 1. | Does a package of policy, training, supervision and audit improve the use of the partograph? |
| | 2. | Does the accurate use of the partograph lead to improved maternal and neonatal outcomes? |
| **Education** | 1. | Support pre-service and in-service training. Implement a multidisciplinary approach in partograph training of all cadres providing labor and delivery care as a comprehensive package. |
| | 2. | Provide training that addresses partograph application as a decision making tool rather than a monitoring tool only. |
| **Practice** | 1. | Ensure provision and sustained supply of basic essential materials and equipment (partographs, blood pressure machines, thermometers, urine testing equipment etc) to enable health workers effective use of the partograph for labor monitoring and decision making. |
| | 2. | Put in place a maintenance structure/process for continued use and evaluation of partograph use. |

**Table 3: Effective Referral Systems**

**Question:**

- What are the barriers and facilitators related to effective referral?

| | | **Priorities** |
|---|---|---|
| **Research** | 1. | Operations research related to implementation of different interventions: use of partograph related to guidelines for referral (documentation only vs. clinical decision making); training; supervision; audit and feedback on accuracy of assessment and outcome after referral. |
| | 2. | Use of future technology (e.g. e-partograph; distance learning). |
| **Education** | 1. | Emphasis in education and training on maternal and fetal distress and obstructed labor. |
| | 2. | Better linking of theory and practice to guidelines. |
| **Practice** | 1. | Management of referral:<br>• Transport – availability of ambulance for patient referral.<br>• Trust and communication between all levels of the maternity care system.<br>• Level of facility/ cadre of provider. |
| | 2. | Create leadership and accountability. |
| | 3. | Guidelines for implementing clinical decision making. |

**Discussion points of the group:**

Emphasis was placed on addressing some barriers to referral, especially critical attitudes, comments and actions of senior staff at the referral center. In addition, the non-availability of transport/ambulance and negative feedback, if any at all, from the centers cause referral staff to be very discouraged and could be a factor in the reluctance to refer.

All staff involved in the continuum of care need to be included in creating a more effective referral system. They all need to realize the importance of being one team and to appreciate how imperative it is to give positive and encouraging responses to referral. Interdisciplinary team building and collaboration, ongoing in-service training, support and facilitative supervision are important for effective referral.

**Table 4: Human Resources**

**Questions:**

- Is there sufficient availability of personnel to enable effective partograph use?
- What supervision and mentoring of staff is required?

| | | **Priorities** |
|---|---|---|
| **Research** | 1. | Partograph design: inclusive research on health worker acceptability, possible revisions to format/content based on end-user perspectives? |
| | 2. | Partograph guidelines: specific to different contexts/resources? |
| | 3. | Client/woman involvement in data collection? |
| **Education** | 1. | Site-based, team focused, context-specific (rural vs. urban) training with guidelines |
| | 2. | Emphasis on partograph as a decision making tool (trigger for action) not just a monitoring form |
| **Practice** | 1. | Innovations in supervision/support, e.g. buddy-based competence building/maintenance |
| | 2. | Push-back against performance-based funding for completion of partograph |
| | 3. | Implement context-specific guidelines |

**Discussion points of the group:**[1]
Research:

- Needs to sample midwives/others who are not using the partograph
- Community participation/empowerment: community partograph as part of birth preparedness
- Should the partograph be adapted for different settings (rural vs. high volume hospital settings)? Guidelines for labor management at different levels need to be developed.
- Why was the observation of descent of head removed from South Asia simplified partograph?
- Are there partograph design problems; is space needed for notes?

Education:

- Pedagogical, one-off training in cadre-specific pre-service training is not adequate. People are currently trained separately in classrooms and introduction of the partograph/quality of training is not targeted to use. Training should include partograph training as a decision making tool in labor.

1 Synthesis of Vandana Tripathi's notes

Practice:

- Barriers to use include, but are not limited to quality of training.
- Need: sufficient number of competent, supported, dedicated, educated staff
- Comment: 'If there are not enough people to use the partograph, then there are not enough people to manage the care – the partograph should not be the 'straw-man' to mask the problem'.
- The dilemma between taking pages of long-form notes which are difficult to interpret vs. completing a 'simple' tool. How useful are the long notes in hand-over, /coordination/action? In order to avoid duplication (medical notes from doctors plus partographs from midwives) it is recommended that that one single document is used by an inter-disciplinary maternity care team.
- Financial incentives MUST be delinked from referral – needs advocacy for this change in settings where PBIs (performance based incentives) have led to more post-fact completion of partographs.

**Table 5: Health Provider Competence**

**Questions:**

- Do health care workers understand the function of the partograph?
- What is health care workers knowledge of assessment using the partograph?
- Do training interventions increase knowledge and use of the partograph?
- What is the level of competence in partograph completion?

| | | **Priorities** |
|---|---|---|
| **Research** | 1. | Which is the best partograph to use – country/setting specific? |
| | 2. | How is the partograph used by HW to identify problems in labor and in decision making? |
| **Education** | 1. | Interdisciplinary education/training to include managers and supervisors |
| | 2. | Focus on problem identification and decision making based on partograph findings including feedback and review following training. |
| **Practice** | 1. | Regular audit and critical incident review – use findings in a positive learning environment (what could be done better next time?) Guidance needs to be available in all facilities. |
| | 2. | Organize effective supervision and mentorship in practice; use of clinical 'buddies' |

**Discussion points of the group:**
The research questions on how the partograph is used to identify problems in labor and in decision making is particularly relevant to HW competence and needs to be focused on in education.

Regular multidisciplinary 'in-service' training is recommended to ensure individuals know their roles and take ownership. Shortage of staff can be a constraint to such training.
'Train the trainer' – trainers need to be up to date and competent in partograph use. Theory needs to match practice in terms of type of partograph used.

eHealth training programs show potential, but there remain issues for those without access – how can similar packages be made available in these settings, e.g. paper versions.

Explore scope of training other cadres of (non-professional) staff effectively.

The group felt strongly that financial incentives were not helpful to partograph use and should not be encouraged.

## CONCLUSIONS AND CONSENSUS

Participants unanimously expressed agreement on the importance of the partograph for labor monitoring and decision making in low resource settings while recognizing that health system support is needed to operationalize the partograph at all levels.

Participants acknowledged that the partograph could be improved/adapted in the light of more than 40 years' experience in practice in order to improve its application.

In order to make the partograph work better in context, the main priorities put forward were as follows:

**Research:**
Research should be conducted to establish whether a package of interventions that include policy formulation, inter-disciplinary training, audit, clinical guidelines linked to the partograph at all levels of the health system, and systems level support can make the partograph work better as a decision making tool.

**Education:**
There is a need for inter-disciplinary partograph education and election of 'champions' at all levels of the health system.

The capacity of midwife educators to teach monitoring and decision making with the partograph needs to be strengthened.

**Practice:**

- Partograph mentoring and facilitative supervision to be established.
- Preparations of guidelines both for clinical management and referral to be developed or to be made available if they already exist.
- Preparation of guidelines for partograph mentors, supervisors and peer support.
- Partograph review on a daily-, rather than a monthly basis and feedback to referral level of transferred women in labor.

One participant from Africa stated at the end: the meeting was wonderful and we hope our contributions will be useful in helping MCHIP plan on how to support governments (Ministries of Health) in mentoring Health Care Providers improve partograph use and interpretation to make decisions.

The authors acknowledge that the priorities identified here do not constitute and were not intended as an action plan for re-vitalizing the partograph, However, by disseminating this report to a wide group of stakeholders, we hope that the priorities identified will serve as a useful basis for developing national and international recommendations for partograph research, education and practice and to leverage the resources required to implement them.

# Appendices

## APPENDIX A: MEETING PARTICIPANTS

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## APPENDIX B: AGENDA


# ICM CONGRESS 2014

## Partograph Side Meeting

*To determine future research, education and practice priorities for realizing the potential of the partograph co-hosted by WHO, USAID's Maternal and Child Health Integrated Program (MCHIP), Engender Health and the University of Manchester.*

**Thursday 5 June, 2014**
**Prague Congress Center, Club D**
**7.30 – 10.00 am**

**AGENDA**

| *Time* | *Item* | *Presenter/facilitator* |
|---|---|---|
| 07.30 - 08.00 | Registration and light breakfast.<br>Welcome<br>Introduction of participants | Sheena Currie<br>Only names and countries |
| 08.00 - 8.10 | Workshop Aims and Objectives | Fran McConville |
| 08.10 –08.30 | Presentation Realist Review<br>Midwives' Partograph Survey | Carol Bedwell<br>Tina Lavender |
| 08.30 – 08.45 | Plenary: interactive brainstorming of solutions for better application of the partograph | Celia Petts and Tina Lavender |
| 08.45 –09.30 | Group work: Based on evidence and related to the five theories of the Realist Review, determination of future priorities for research, education and practice | 10 groups (5 facilitators – Fran, Celia, Carol, Tina, Barbara) |
| 09.30 – 09.50 | Plenary: Group Presentations of priorities | group rapporteurs (alternate 1A, 2B, 3A, 4B, 5A (3 minutes each presenting group and 1 minute additions from second group 1B,2A,3B,4A,5B prn) |
| 09.50 – 10.00 | Plenary: Consensus of priorities | Fran, Barbara |

**Process for the working groups:**
There are five Theories: Two groups discuss the evidence of one Theory (based on Carol's presentation) and define future priorities for research, education and practice, using a pre-designed framework).

## APPENDIX C: THEORY 1

**Health Worker Acceptability**

| Question | N | Synthesis |
|---|---|---|
| Do health care workers use the partograph? | 15 | Use varied from 8% to 80%.<br>More likely to be used in tertiary settings.<br>Some training increased use.<br>No evidence to suggest that experience impacts on use.<br>No evidence to suggest that confidence in using the partograph increases its use. |
| What are health care workers attitudes towards the partograph? | 9 | Health care workers displayed positive attitudes towards the partograph.<br>A positive attitude alone does not increase use. |
| How does the format of the partograph affect usability? | 20 | The composite partograph seen as difficult.<br>Removal of the latent phase increases user-friendliness without detriment to maternal or neonatal outcomes. |

*Source: Bedwell C, Levin K, Lavender T, Realist Review, 2014*
*Presentation ICM Congress, June 2014*

## APPENDIX D: THEORY 2

**Health System Support**

| Question | N | Synthesis |
|---|---|---|
| What is the organisational commitment to partograph use? | 11 | Widespread implementation suggests a level of organisational support but little evidence of continued support. |
| What is the policy and guidance related to partograph use? | 11 | Facility level guidance not always available; where it does exist, there is evidence of improved engagement in partograph use. |
| Is there support for partograph use in terms of resource provision? | 7 | General lack of resources/financial support for equipment plus availability of the partograph itself is a barrier. |
| How can the partograph be implemented effectively? | 8 | Little evidence to determine the most effective method of implementation.<br><br>Training prior to implementation and audit following implementation may improve use and accuracy. |

*Source: Bedwell C, Levin K, Lavender T, Realist Review, 2014*
*Presentation ICM Congress, June 2014*

## APPENDIX E: THEORY 3

**Effective Referral Systems**

| Question | N | Synthesis |
|---|---|---|
| What are the barriers and facilitators related to effective referral? | 11 | Health care workers do refer based on partograph findings.<br><br>In some cases, where the partograph was used to identify problems, this was not always acted upon.<br><br>Failure of medical staff to act on findings.<br><br>There is some confusion over roles and responsibilities around partograph use.<br><br>The partograph is not always used as a communication aid between health care workers. |

*Source: Bedwell C, Levin K, Lavender T, Realist Review, 2014*
*Presentation ICM Congress, June 2014*

## APPENDIX F: THEORY 4

**Human Resources**

| Question | N | Synthesis |
|---|---|---|
| Is there sufficient availability of personnel to enable effective partograph use? | 7 | Evidence that shortage of staff and a heavy workload may impact on partograph use.<br><br>Some evidence to suggest that health care workers find the partograph time consuming to complete.<br><br>Some evidence that other cadres of health care workers can successfully complete the partograph. |
| What supervision and mentoring of staff is required? | 10 | Lack of evidence regarding supervision and mentorship in practice.<br><br>Studies suggest that supervision may have a positive influence on partograph use.<br><br>Some evidence that audit and feedback of findings to staff may improve completion rates and quality. |

*Source: Bedwell C, Levin K, Lavender T, Realist Review, 2014*
*Presentation ICM Congress, June 2014*

## APPENDIX G: THEORY 5

**Health Provider Competence**

| Question | N | Synthesis |
|---|---|---|
| Do health care workers understand the function of the partograph? | 7 | Those working in tertiary facilities and professionally trained had better knowledge. |
| What is health care workers knowledge of assessment using the partograph? | 3 | Knowledge of when to start partograph, alert and action lines & plotting normal labour was poor. |
| Do training interventions increase knowledge and use of the partograph? | 8 | Training interventions had a positive impact on knowledge and use.<br>The majority of health care workers desired further training. |
| What is the level of competence in partograph completion? | 10 | Most likely to be completed: cervical dilatation, fetal heart rate and condition of the neonate.<br>Least likely to be completed: maternal observations.<br>Completed in accordance with WHO guidance/defined standards. |

*Source: Bedwell C, Levin K, Lavender T, Realist Review, 2014*
*Presentation ICM Congress, June 2014*

## APPENDIX H: REFERENCES


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